AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1.   (currently amended)   A linear motor comprising:

a first magnetic field detector and a second magnetic field detector mutually separated by an actual distance that differs from a nominal predetermined distance by a manufacturing/assembly error distance that is within a ~~subject to~~ manufacturing/assembly tolerance ~~tolerances that can introduce an error, said error causing said first and second magnetic field detectors to be in reality mutually separated by an actual distance that can be different to said nominal predetermined distance;~~

~~wherein there exists an ideal working distance by which said first and second magnetic field detectors should be mutually separated in order to obtain ideal signals; and~~

wherein both of said nominal predetermined distance and said actual distance are different from an ideal working distance,

wherein ~~said nominal predetermined distance is different to~~ said ideal working distance is a distance between said first and second magnetic field detectors at which said first and second magnetic field detectors produce ideal signals in response to detecting a magnetic field.

2.   (original)   A linear motor according to claim 1, wherein said nominal predetermined distance is greater than said ideal working distance.

3.   (previously presented)   A linear motor according to claim 2, wherein said nominal predetermined distance is greater than said ideal working distance by an amount such that said actual distance will, for the known tolerances, be greater than said ideal working distance.

4.   (previously presented)   A linear motor according to claim 3, wherein said nominal predetermined distance is a distance corresponding to about 95° of phase shift between said first and second magnetic field detectors.

5.   (original)   A linear motor according to claim 1, wherein said nominal predetermined distance is smaller than said ideal working distance by an amount such that said actual distance will, for the known tolerances, be smaller than said ideal working distance.

6.   (currently amended)   A linear motor according to claim 4, wherein said ideal working distance is a distance corresponding to 90° of phase shift between said first and second magnetic field detectors, which distance will be one quarter of the full cyclical pole pitch of the-magnets of the disposed on a rotor of the linear motor.

7.   (currently amended)   A linear motor according to claim 1, further comprising correction means arranged to synthesise a correction signal for correcting the-an output signal of said first magnetic field detector so that the-signals obtained after

correction more closely correspond to the signals that would have been obtained had said first and second magnetic field detectors been correctly mutually separated by the ideal working distance.

8.   (original)   A linear motor according to claim 7, wherein said correction means is incorporated into the structure of the linear motor so that the output signals presented to the user are already corrected.

9.   (previously presented)   A linear motor according to claim 8, wherein said correction means is arranged to add said correction signal to said output signal of said first magnetic field detector so as to obtain a corrected first magnetic field detector signal.

10.   (previously presented)   A linear motor according to claim 7, wherein said correction signal comprises a scaled version of the output signal of said second magnetic field detector.

11.   (currently amended)   A linear motor according to claim 10, wherein said correction means is arranged to scale the output of said second magnetic field detector by an amount dependent on the actual distance separating said ~~at least two~~ first and second magnetic field detectors.

12.   (previously presented)   A linear motor according to claim 11, wherein the scaling amount is determined by a resistor in a summing circuit of said correction means.

13.   (original)   A linear motor according to claim 12, wherein said resistor is an adjustable potentiometer.

14.   (original)   A linear motor according to claim 13, wherein said adjustable potentiometer is digitally controllable by a calibration computer.

15.   (previously presented)   A linear motor according to claim 7, wherein said correction signal comprises a scaled and phase shifted version of the output signal of said first magnetic field detector.

16.   (original)   A linear motor according to claim 15, wherein said correction signal is a scaled version of said output signal of said first magnetic field detector phase shifted by 90°.

17.   (previously presented)   A linear motor according to claim 7, wherein said correction signal is synthesised digitally.

18.   (currently amended)   A method of arranging magnetic field detectors in making a linear motor, said method comprising:

(a)   determining an ideal working distance between first and second magnetic field detectors ~~by~~ at which said first and second magnetic field detectors ~~should be mutually separated in order to obtain~~ produce ideal signals in response to detecting a magnetic field;

(b)   selecting a nominal predetermined distance that is different [[to]] from said ideal working distance; and

(c)   assembling said first and second magnetic field detectors on a stator member so as to be said nominal predetermined distance apart.

19.   (original)   A method according to claim 18, wherein said nominal predetermined distance is selected to be greater than said ideal working distance.

20.   (currently amended)   A method according to claim 19, wherein said nominal predetermined distance is greater than said ideal working distance by an amount such that ~~said~~ an actual distance between said first and second magnetic field detectors will, for the known tolerances, be greater than said ideal working distance.

21.   (currently amended)   A method according to claim ~~20~~18, wherein said ideal working distance is a distance corresponding to 90° of phase shift between said first and second magnetic field detectors, which distance will be one quarter of the full cyclical pole pitch of ~~the~~ magnets ~~of~~ disposed on a ~~the~~ rotor of the linear motor.

22.   (previously presented)   A method according to claim 21, wherein said nominal predetermined distance is a distance corresponding to about 95° of phase shift between said first and second magnetic field detectors.

23.   (currently amended)   A linear motor comprising:

a first magnetic field detector and a second magnetic field detector mutually separated by an actual distance; ~~by a nominal predetermined distance that is subject to manufacturing/assembly tolerances that can introduce an error, said error causing said first and second magnetic field detectors to be in reality mutually separated by an actual distance that can be different to said nominal predetermined distance;~~

wherein said actual distance differs from ~~there exists~~ an ideal working distance, said ideal working distance being a distance between ~~by which~~ said first and second magnetic field detectors ~~should be mutually separated in order to obtain~~ enabling said first and second magnetic field detectors to produce ideal signals in response to detecting a magnetic field; and

further comprising correction means arranged to synthesise a correction signal for correcting ~~the~~ an output signal of said first magnetic field detector so that the signals obtained after correction more closely correspond to the ideal signals that would have been ~~obtained~~ produced had said first and second magnetic field detectors been ~~correctly~~ mutually separated by the ideal working distance.

24.   (currently amended)   A method of configuring magnetic field detectors in making a linear motor, said method comprising:

(a)	assembling first and second magnetic field detectors on a stator member so as to be a nominal predetermined distance apart;

(b)	analysing ~~the~~ signals from said magnetic field detectors so as to determine a correction signal; and

(c)	adjusting correction means to provide that, in use, said correction signal is synthesised and used to correct the output of said first magnetic field detector so that the signals after correction more closely correspond to ideal signals.

25.	(original)	A method according to claim 24, wherein step (b) includes determining a scaling amount to be used in scaling an output of said second magnetic field detector, said scaled output being for use as said correction signal.

26.	(currently amended)	A method according to claim 25, wherein step (b) includes

(i) determining a rotor position for which the signal from said second magnetic field detector is substantially zero; ~~then~~

(ii) moving the rotor relative to the stator by an amount substantially equal to one quarter of ~~the~~ a full cyclical pole pitch of ~~the~~ magnets ~~of~~ associated with the rotor, and

(iii) measuring the signal from said first magnetic field detector.

27.   (previously presented)   A method according to claim 26, wherein said scaling amount is determined in accordance with the signal from the first magnetic field detector measured in step (iii).

28.   (previously presented)   A method according to claim 24, wherein said correction means is digitally adjusted by a computer connected to said linear motor.

29.   (currently amended)   A method according to claim 28, wherein said correction means is adjusted until it is determined that said signals after correction are substantially ideal.

30.   (previously presented)   A method according to claim 24, wherein signals from said first and second magnetic field detectors that are 90° out of phase are considered to be ideal signals.

31.   (previously presented)   A method according to claim 24, wherein said correction means is incorporated into the structure of the linear motor.

32.   (currently amended)   A method according to claim 24, wherein said nominal predetermined distance is selected to be different to from an ideal working distance defined as the mutual separation of the first and second magnetic field detectors that gives ideal signals.

33. (original) A method of operating a linear motor, said method comprising:

(a) providing drive currents to the coils of a stator of said linear motor;

(b) receiving signals from first and second magnetic field detectors;

(c) synthesising a correction signal for correcting the output of said first magnetic field detector;

(d) correcting the output of said first magnetic field detector using said correction signal;

(e) using the corrected first magnetic field detector output and the second magnetic field detector output to determine the position of the rotor with respect to the stator.

34. (original) A method according to claim 33, wherein said correction signal is added to the output of said first magnetic field detector in step (d).

35. (previously presented) A method according to claim 34, wherein said correction signal is synthesised in step (c) by scaling the output signal of said second magnetic field detector.

36. (original) A method according to claim 35, wherein the scaling amount is determined by a resistor in a correction circuit of said linear motor.

37.   (previously presented)   A method according to claim 33, wherein said first and second magnetic field detectors are longitudinally separated on the stator of said linear motor by nominal predetermined distance different to an ideal working distance defined as the mutual separation of the first and second magnetic field detectors that gives ideal signals.

38.   (original)   A method according to claim 37, wherein said ideal working distance is a distance corresponding to 90° of phase shift between said first and second magnetic field detectors.